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THE JOURNAL OF EDUCATIONAL SOCIOLOGY

Safety Education for Modern Living

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E. GEORGE PAYNE, PIONEER IN SAFETY EDUCATION

Dan W. Dodson

Many who have known Dean Payne from his association with THE JOURNAL for many years and his leadership in American education as Dean of the School of Education, New York University, may not have known that he was one of the pioneers in safety education. While at Harris Teachers College in St. Louis, Dr. Payne was largely responsible for inspiring and guiding the earliest efforts in planning workable programs of instruction. He carried on an extensive study at Wyman School in that city to demonstrate that safety could be taught effectively by correlation with practically every subject in the curriculum. This method successfully met the objection of many school administrators that additional money and teachers would be needed if safety programs were to be introduced. Teachers from all parts of the country visited Wyman School and returned to their communities convinced that the plan was practical. Further impetus was given to the work in 1919 by the publication of Dr. Payne's book, *Education in Accident Prevention.*

While education in safe living is in reality as old as man himself, the organized child-safety movement as such did not receive national recognition until several years after the work initiated by Dr. Payne in St. Louis and by Harriet E. Beard in Detroit. Dean

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Payne not only contributed a great deal to the safety-education movement in the past, but he has also been one of its friendly critics. In the September, 1937, issue of THE JOURNAL OF EDUCATIONAL SOCIOLOGY, he emphasized certain important criticisms of the movement, pointing out that "much money has been spent in the elaboration of the program in so far as the techniques of instruction are concerned, but the promotion work has been in the hands of those much less familiar with the schools and the work of education than the educators themselves."[1] In this article, he advocated giving back safety education to the schools. During the past ten years the tendency has been steadily in this direction—more and more the leadership in the states and in the cities has been in the hands of educators. The American Association of School Administrators recognized the importance of the movement by devoting the *Eighteenth Yearbook* to safety education. More recently, the National Commission on Safety Education was organized in the National Education Association to represent teachers and administrators throughout the country. In addition, many colleges and universities are now including safety-education courses in their curricula.

Dean Payne also stressed the fundamental need for research, asserting that "altogether too little money has been spent in the accumulation of data indispensable to the operation of the safety program itself." He added that altogether too little research had been carried on relative to the fitness of drivers to operate cars; that in most states "all these operators, with no tested equipment for knowledge, attitudes, or practice under normal conditions for handling a car, are . . . . turned loose to slaughter the public."[2] He emphasized the need for careful research in the causes and elimina-

[1] E. George Payne, "Contemporary Accidents and Their Nonreduction," *The Journal of Educational Sociology*, XI, No. 1, September, 1937, pp. 19–28.

[2] *Loc. cit.*

tion of accidents, in much the same way as research in the elimination of diseases.

Since 1937, however, much more attention has been directed to getting at the underlying causes of accidents and the methods of prevention. For example, up to that time there had been but few doctoral studies or other research on the higher level, but since then over 25 doctoral studies and nearly 100 on the masters' level have been completed. Safety is gradually developing a body of research in the various fields and a far more scientific approach to its problems. This has been especially true of industrial safety, where engineers and educators have conducted careful studies to determine the most effective methods of reducing accidents. However, there are still many safety problems that need to be solved—many questions are still unanswered. It will take years before research will find the answers to many of these perplexing problems.

Dean Payne should have a feeling of satisfaction, as a pioneer in the movement, when he sees safety education growing up and gradually meeting the "urgent need for a fundamental consideration of the whole problem, the institution of an intensive program of research, so that materials can be provided the teachers in their effort to render vital service to the public in the elimination of accidents and hazards—the most serious blot on current civilization."

Dan W. Dodson is Managing Editor of THE JOURNAL OF EDUCATIONAL SOCIOLOGY and Assistant Professor of Sociology in the School of Education of New York University.

THE NATURE AND SCOPE OF SOCIETY'S ACCIDENT PROBLEM

Henry T. Heald

On June 5, 1946, 61 persons lost their lives in the disastrous La Salle Hotel fire in Chicago. This catastrophe was front-page news throughout the country and brought forth editorials, inspired inspections of other hotels and public buildings, and stimulated a tightening of regulatory procedures. Yet if the day of the fire was typical of the yearly experience, perhaps 260 accidental deaths occurred throughout the country—and passed largely without public notice. During the year 1945, there were 96,000 fatal accidents in the United States. This figure compares with a high in 1936 of 110,000 deaths from accidental causes. During the last forty years there has been a general upward trend in motor-vehicle fatalities and a downward trend for all other types. In comparison to the population, the accident rate was 18 per cent less in 1945 than in 1901—a very small gain. No thoughtful person can deny that an annual accident rate that produces nearly 100,000 deaths and 10,000,000 injuries is serious enough to warrant the attention of every single American citizen.

Numerous individuals and organizations have long recognized the gravity of the accident problem. Nevertheless, the seriousness of this problem continues to grow daily, and any one of us, a member of his family, or his best friend may be the next victim of a preventable accident. But no single group or combination of individuals can make notable progress in reducing the accident toll without the co-operation of every member of society.

Accidents result from a lack of understanding of and a proper appreciation for a personal sense of responsibility. This sense of responsibility is equally important for the employer, the public official, the employee, the automobile driver, and, in fact, for every individual regardless of occupation or community status. The spe-

cialist in accident prevention can make an important contribution to the problem by determining safe practices, ensuring the proper design of machinery and structures, enforcing safety regulations, and disseminating information. But without public co-operation, the specialists can only stem the tide of accidents, not eliminate them. Safety engineers have long since proved that accidents can be prevented. Public opinion has been educated to the level where a greater interest is being developed in safety through engineering practice, classes for safety instruction, driver training, and codes and specifications. Unfortunately, at the present time this level of public enlightenment is still far short of the minimum requirement for drastically reducing the rate of accidental death and injury.

Our generation has seen an unprecedented destruction of human life and human values in a great war. Medical science, improved standards of living, and increased public education have made possible great strides in the improvement of health and national welfare. It should be unnecessary to have to present arguments in behalf of safety. And yet safety as a positive factor in prolonging life has not yet been universally accepted as a fundamental concept by a society that has developed and continues to evolve an increasing number of man-made hazards.

The accident problem involves every individual in every community; every individual in every organization from the top administrative head to the employee in the lowest bracket, whether the organization is a division of government, a private institution, or an industrial plant. The severity of the problem is related to every phase of the selection and training of personnel, the efficiency of methods and procedures of production, the design of plants and machines, and the provision for health, welfare, and sanitation. Injuries may occur in the home, on the streets and highways, on the farm, or in the factory. Such injuries are the result of a wide variety of causes, largely preventable by proper attention to and an understanding of the causes of accidents. Accidents may be the result of

mechanical failure, exposure to toxic vapor, lack of proper instruction and training, failure of management or supervision, maladjustment of the employee to his job, or the lack of skill of the operator of a motor vehicle. Factors such as these are underlying causes of every accident wherever it occurs.

The Committee on Safety Education of the President's Highway Safety Conference states: "Safety represents the efficiency of adjustment which man makes to his total environment. It is not, cannot be optional. It has become a condition of survival, and as such an essential quality of the individual. It involves foresight and interplay of innumerable insights, cautions, and efficiencies, which enable the individual to meet life's demands and opportunities on better than even terms."

There can be no denying the fact that efforts to reduce accidents have widespread public approval, yet to a large degree this approval takes the form of passive acceptance of the idea that accidents are bad for society; there is no active participation in or support for carefully planned and well-organized programs for accident prevention. Too often an accident is viewed only as a misfortune that affected the other fellow.

The methods and procedures for accident prevention are now becoming well established. Organizations such as the National Safety Council, various government agencies, and many schools and industrial plants have made great progress in identifying the causes of accidents and developing practices to eliminate them. Much more knowledge can be gained in these fields by further study and research. But this work is futile unless resolutely followed by sound programs of action. Public education, good engineering, and adequate enforcement are the primary requirements for a successful program of accident reduction.

Safety training is one of the first essentials. It actually begins in the home with the parent as the first safety director. The statistical record of accidents to young children is a severe reflection upon the

training and capability of the parent. Elementary safety training for parents can be not only profitable statistically but can save untold personal sorrow and tragedy.

When the child goes to school his teacher plays a part as a secondary safety director, supplementing the parents. This training should continue through high school and prepare the young adult to rely upon his own resources and those provided by the community and his employer for his continued training and well-being.

Every school and every teacher plays a most important role in the imparting of knowledge of safety and accident prevention to the students. Hence one of the most important long-range weapons to combat needless accidents is education. Greater public recognition of the importance of the educational system to accident prevention will result in increased appropriations for this work, the latter making possible better teachers and more adequate attention to the subject. The long-term effect of increased attention to accident problems in the schools will create a public opinion that will demand more effective legislation and enforcement on such matters as traffic control, workmen's compensation, occupational diseases, and building and fire codes. An informed citizenry will expect and demand more effective service from insurance companies, government agencies, and private industry in connection with health, sanitation, machine guarding, toxicity controls, and motor-vehicle regulation. Such citizens also may be expected to extend increasing co-operation to the agencies working with and for them in order to enjoy accident-free, happy, healthy, and successful lives.

Established records for the operation of plants in various types of industry, as well as community records for freedom from accidents, demonstrate that effective preventive measures can be put into operation. They show that the toll of fatalities and disabling injuries need not be calmly accepted as a necessary evil. The human suffering, mental anguish, and hardship accompanied by additional costs, waste, and confusion can be eliminated. This fact spurs the efforts

of those already engaged in accident prevention. It should encourage others to lend their serious attention to this important task.

Perhaps the greatest strides have been made in the field of industrial safety where occupational accidents have shown a steady decrease in spite of a greatly increased working population. During the war years, industrial accidents failed to show the expected increase largely because of a nationwide volunteer program to bring the best safety experience to war plants; and because of the training of thousands of men in the principles of industrial safety through courses offered in the Engineering, Science and Management War Training Programs. As an example, during the year 1945, 40 individual plants out of 129 plants in one important industry operated without a single lost-time accident. One naval ammunition depot reduced its lost-time accident frequency by 80 per cent in the first six months of 1945 as compared to the experience reported in 1944.

Although employers' liability laws were passed in 1885 and 1887 by Alabama and Massachusetts, respectively, and the first state workmen's compensation law was enacted by New Jersey in 1911, accident prevention has been in the pioneer stage until recent years. Even today a great deal of additional pioneering and research needs to be performed. However, there are more trained people working in the field of accident prevention now than ever before; but, at the same time, the increasing complexity of a modern technological society exposes its citizens to new and increased hazards. Although the death rate from accidents from sources other than the motor vehicle has been cut approximately in half since 1941, the motor-vehicle death rate has increased to keep the total nearly constant. Since the automobile is a personal vehicle, this further emphasizes the necessity for developing a personal sense of responsibility by all members of society. The President's Highway Safety Conference was held in recognition of the need for united action on a national scale to curtail the rapidly growing toll of fatalities on the streets and highways of the nation. This conference demonstrated the

opportunities that all types of organizations have to contribute to the solution of the problem, and emphasized their stake in highway safety for humanitarian and economic reasons. It also recognized the legal responsibilities of governments to provide the best possible official program for accident prevention and the responsibility of individuals for their proper conduct as users of the country's streets and highways. The conference recommended sound programs of laws and ordinances, accident records, education, enforcement, engineering, motor-vehicle administration, and public information, all of primary importance in any well-considered effort to reduce traffic accidents.

The accident problem also extends beyond the moment when the injury occurs. Society is concerned with the machinery for the proper treatment of injuries, adequate compensation, and the rehabilitation of the victim as an important part of a safety program.

The costs of war cannot fairly be measured in terms of deaths and injuries. Yet total American war casualties from Pearl Harbor to V-J Day included 262,000 killed and 652,000 injured. During the same period there were 355,000 accidental deaths and 36,000,000 injuries in the United States. War cost this country billions of dollars but the estimated cost for accidents in 1945 alone was $5,000,000,000.

Society's accident problem will not be solved by unplanned or spasmodic efforts. Immediate attention should be given to urgent problems such as traffic safety. But a carefully prepared program of long-range education, engineering, and enforcement effectively executed and modified to meet the changing conditions of a technological civilization must be developed if society is to achieve self-preservation.

Henry T. Heald is President of Illinois Institute of Technology.

THE PHILOSOPHY OF THE ACCIDENT PROBLEM

Roscoe L. West

During the past hundred years the most outstanding developments in society have come because of the application of science to technology, and from the mechanical inventions that have resulted. We live in an entirely different world from that inhabited by our grandfathers and great-grandfathers. Our children take this world for granted, yet both we and they are not cognizant of the changes that this kind of society has brought about in the actual lives of people.

We are surrounded by machines. We use them on the road and in the home. We are familiar with all kinds of gadgets that we think are necessary to our modern world. Because of these mechanical devices, life has in many ways become more dangerous than ever before. If machines are not properly protected, people will be maimed and killed while operating them. If they do not learn how to operate automobiles and airplanes with skill and safety, they and others are bound to be injured and killed. Even in rural life, which most people think to be far safer than city life, there are innumerable hazards that never used to exist.

How shall we regard this kind of existence? Shall we assume that each individual must adjust himself to it according to the best of his ability, or shall we accept these changes as a part of modern life to which man must be taught to adapt himself? Is safety education simply another subject to be added to an already crowded curriculum, or is it a fundamental part of school experience in accordance with a modern philosophy of education? Does emphasis on "safety" mean that we are afraid of taking chances or does it represent an intelligent approach to the problems of life?

Without question, the average school administrator has resisted the attempts of those interested in safety education to have this type of instruction included in the schools. He is annoyed when outside

groups attempt to dictate what is to be in the school curriculum. He knows that, in some states, laws have been passed requiring a certain number of minutes per week to be devoted to fire prevention and a certain number of other minutes to the teaching of the dangers of alcohol and narcotics and various other special topics. He believes that a curriculum should not be made by legislative fiat but by careful analysis of the needs of society, of the children, and of a proper combination of these factors as they relate to maturity, environment, and other such items.

It is certain that those interested in prevention of accidents and in the inclusion of safety education in the schools will not get far if they do not convince school people and the public in general that safety education is an essential part of the general education of all children and not a special topic forced upon unwilling teachers and pupils. Fundamentally, safety education should be considered as a phase of the whole general problem of teaching children (1) to understand the modern scientific, technological civilization in which they live and (2) to adapt themselves to this civilization in ways that will be beneficial to them and to their fellow man. From this point of view, therefore, the problem of safety education cannot be isolated from any other pertinent problems facing our schools.

To what extent are the schools responsible for changing the attitude of the community toward accidents? How can the schools influence community support and action? Here again we see the implications of safety education as closely related to all other services provided. We have not effectively utilized accident statistics. There is a special need for influencing the most important people in local and state governments to become interested in safety. In making a demand on the school to increase its efforts in safety education, the community must, by example, increase its efforts for safer living by every means possible—through engineering, education, and enforcement. Unless this is done, the community is making a mockery of what it requires of the school.

There is also the problem of community co-ordination for the promotion of safety. In this area the schools may assume important leadership, as has been done in organizing other programs involving community effort. An excellent example of over-all community leadership exercised by schools has been the extended school service programs or the day-care centers established during wartime to care for the children of working mothers. In thousands of communities throughout the country, over-all committees were organized to work out this problem on a local basis. In doing this, school administrators and other personnel have played important parts.

With our advanced curriculum-planning activities, it should not be difficult to find the appropriate place for safety in the school curriculum. In view of the numerous demands made upon the schools, probably the problem is not so much one of finding a place for safety education as it is finding the time. When a high-school principal is asked about driver training, usually his first question is: "How can I get it into the program?" The problem is less pertinent in the elementary-school classroom, where children are cutting and preparing pictures for scrapbooks. How to use the scissors properly involves little time and effort. Failure to teach safety in many practical school situations is no doubt due to the fact that teachers are not aware of the possibilities. Here again, we see the need of supervisory services to work with teachers and faculties to fit safety education into the program and help teachers to see opportunities for creating an interest in and develop habits of safer living. More involved, this problem is related to administration and supervision. Unless supervisory services are well planned, the teacher becomes confused with assignments presented through supervisory channels.

The traffic safety problem is far more involved than teaching skillful driving and crossing the streets safely. There must be a keener sense of responsibility on the part of the individual who handles the automobile. A study made in recent years by a group of Pennsylvania educators shows that, in terms of miles driven, the

fatality rate of 16-year-olds was nine times greater than that of drivers 45 to 50 years old. This was not because of lack of skill, but because of lack of social responsibility. The high schools are challenged to do more about this situation. A plan to give them a fuller understanding of what the motor vehicle means to our national life and how it may be utilized properly in the development of our natural resources and in raising the standard of living may help to influence this appreciation. Many high schools have already equipped students with knowledge, skill, and proper attitudes regarding the motor vehicle and its safe use. They are making competent citizens for our motor age. Measured in terms of saving life, the money and effort expended in training drivers will repay society many times over.

Safety education, therefore, is a part of the general education of citizens of a modern technological society. It is a part of the education for good citizenship. Good results in this field mean a contribution to the ability of man to understand the environment that he has created for himself and to use that environment for his own benefit rather than for his destruction or for that of his fellow man. The philosophy of safety is not a selfish one. A person should be taught to avoid accidents not for himself alone but because of the impact of his acts on the society around him. Unless man can solve these small problems of social living, he can never solve the larger problems of a world society that are so important at the present time. Atomic energy can be used to destroy the world or to re-create it. Which road will man take?

Roscoe L. West is President of the New Jersey State Teachers College at Trenton and Chairman of the National Commission on Safety Education of the National Education Association.

CONTEMPORARY PROBLEMS IN ACCIDENT PREVENTION AND SAFETY EDUCATION

Julien H. Harvey

Safety has never been taken seriously as a desirable national objective by large segments of the American public. With nearly 1,000,000 persons meeting accidental deaths every decade, this is not an overstatement. This is the central problem in accident prevention. Without an understanding of the widespread ignorance and indifference to the accident problem, we cannot pin our hopes on scattered and inadequate remedial measures that promise much, but actually contribute little. As an example, the automobile-inspection program, just completed on a national scale by the International Association of Chiefs of Police, is a most admirable activity, calling attention as it does to the importance of having good brakes and cars in satisfactory condition. But such an activity must fail of even reasonable success unless it stimulates every state to make periodic automobile inspections mandatory. Until that is done, there is no guarantee of systematic discovery of unsatisfactory mechanical conditions, nor will there be a public appreciation of the importance of satisfactory mechanical conditions.

It is not the purpose of this article to discuss all of the accident problems that face the country today. These problems vary in importance, as was measured by changing public interest. In fact, one of the surest indexes of the lack of a national, sustained, comprehensive accident-prevention program is the fluctuation in interest as one or another segment of the total accident problem swims to the surface of public awareness. Often the major problem is that of traffic. During the war, it was natural that the safety of workers was a matter of prime concern. All contracts between the government and producing facilities not only called for safety programs in industry, but specified a certain number of safety personnel in relation

to the total persons employed. Again the industrial safety problem calls attention to another accident area—home accidents.

In any year, of all workers killed, the smaller number will be killed while actually at work. The greater number will be killed away from work, with a fair number killed in the home. As attention, therefore, is directed to the problem of home accidents, it is discovered that home accidents account for an average of 30,000 deaths a year, second in number only to traffic accidents. In fact, during the war, home accidents ranked first in the total for several years. Yet only sporadic attention is given to this, admittedly one of the most difficult areas of accidents. It is to be hoped that the recent formation of the National Conference on Home Safety, embracing most of the interested national agencies and organizations, will do much to direct better efforts to the solution of this problem.

It will be the purpose of this article to draw attention to these fundamental social problems of accident prevention and to certain general needs that are also problems until they are met. For convenience, the discussion will be divided as follows: (1) certain general problems; (2) how these problems appear in three accident areas: traffic, the home, and industry; (3) certain basic needs in accident prevention.

Certain General Problems

Public indifference. That the great mass of our citizens seem uninterested in making a concerted effort in behalf of the general safety cannot be doubted. The figure previously given of a million accidental deaths per decade would seem convincing proof. But for public apathy there are always reasons, and here again the reasons for this indifference are important. Citing public indifference does not advance our knowledge unless we know the reasons and what can be done about them. A major reason, namely, the failure to take the problem seriously, may be partially explained through the failure of national and state governments to manifest a sincere,

thorough, and continuous interest in the problem. The public, in general, will do no more than its leaders demand—the leaders have not demanded enough.

Public officials. Public officials, as the servants of the people, have not, except in certain instances, come to grips with the problem. Often, officials have been content with the appearance of activity rather than with the establishment of effective, continuous measures. Where there is vacillation or halfway measures on the part of our officials, what can be expected of the general public?

Education. The public and private schools and colleges have not measured up to their responsibilities in the matter of accident prevention. The participation of public schools and colleges must be viewed both as a result of public interest and as a means of stimulating and supporting this same public interest further. Often, the lack of co-operation by educational agencies is viewed uncritically by many as evidence that the activity is unimportant. It is true, in many instances, that school authorities on both the state and local level incline to the view that safety instruction and safety activities should be undertaken by "other," frequently unspecified, agencies. This point of view seems to miss the fact that the school's responsibility for conditioning the oncoming generations to the hazards of modern living is quite as great as any of the other responsibilities that the schools are called upon to discharge. It has been truly said that "to help develop the mind without teaching the means of preserving the body" is a rather lopsided view of education. In the nature of the accident problem, no other single agency can do quite as much for a permanent solution as the schools and colleges. The present picture is discouraging, but there is a glimmer of light discernible.

Problems in the Areas of Traffic, Home, and Industrial Accidents

Traffic accidents. In ordinary years, traffic accidents lead other areas in deaths and injuries. Since the ending of the war and the relaxation consequent thereupon, traffic deaths and injuries have

steadily mounted. So bad was the situation that President Truman summoned to Washington the most representative group of interested persons ever to assemble for a highway safety conference. This was a deliberative and not an executive body; thus, its effects will be measured by what is done at state and local levels by the appropriate authorities. This conference reaffirmed, in a comprehensive report covering the three areas of education, engineering, and enforcement, what those active in the field have believed in and tried to promote for many years. Many of these points of view, as far as education is concerned, were enunciated in the *Eighteenth Yearbook* of the American Association of School Administrators. But we are far from a realization of the goals set in that publication, as well as the goals set by the President's conference.

Some of the major problems in traffic safety are these:

1. Engineering

a) Lack of adequate roads for the volume and speed of modern traffic

b) Lack of uniform signs, signals, and markings throughout the country

c) Lack of a satisfactory and reasonably uniform philosophy of speed throughout the country

d) The fact that too much engineering is done without recourse to the acceptance of educational and enforcement authorities, violating thereby the need for co-ordinated action among the three *E*'s. The best engineering will be nullified by poor use. Better use can be best guaranteed by education and enforcement working with engineering.

2. Enforcement

a) Here the chief problem is how to secure better enforcement of traffic laws. Enforcement must be broadened to include a scheme of uniform legislation for traffic control that is well conceived, realistic, and modern. From law, we pass to the executives of the law, the various types of enforcement officers. The problem here is how to get more adequate enforcement through larger patrols—better-trained men with a better basic understanding of the philosophy of enforcement. Implicit in the work of these officers must be the proposition that prevention of accidents is as much a part of their activities as the apprehension of wrongdoers.

This suggests a broadening of the educational work of enforcement officers and, again, a clear understanding of how the other two *E*'s can help enforcement. A major problem is the freeing of motor-vehicle police forces from all duties that interfere with their traffic duties.

3. Education

a) The only way to inculcate and foster that self-discipline, which is the only permanent guarantee of maximum safety, is through education. The best means for such mass education is through the schools. A few phrases from the report of the education committee of the President's conference are illuminating (remember that these are the statements of representative educators):

(1) Experience shows that many accidents are preventable through a program of education.

(2) Instruction in safety is an essential part of the modern school's program of producing good citizens.

(3) Teaching youth to be safe and intelligent operators of motor cars is a responsibility of the community.

(4) The school has a responsibility for systematic instruction in all aspects of safety.

(5) The problem is how to get these standards translated into effective practice in all the schools of the country.

Home safety. The home accident is in a category strikingly different from any other type of accident. It is a *private* accident occurring within a home, and in this country, as in some others, a man's home is still his castle. It is very difficult to enter. Geographical differences, varieties of racial and national backgrounds, unevenness in and the sporadic nature of remedial efforts: all conspire to make the home accident difficult to combat. The psychological fact of mental and physical relaxation in the home and the failure of so many persons to take the hazards of the home seriously are additional aggravations of the basic complexity of this area of accidents.

Industrial safety. Industry, which includes all classes of commercial enterprise, has made the greatest gains in the reduction of accidents. This was dramatically true in the recent production achieve-

ment, the greatest in the history of the world. However, the record is not so good that it cannot be improved; for, among other considerations, there is evidence that the industrial-accident rate since the war is on the increase. Much light is being thrown on the problem of industrial accidents by some current studies on accident-proneness being made at New York University, and by such work as that of Dr. Tobias Wagner at the same institution.[1] In studying the comparative work efficiency of orthopedically disabled persons, Dr. Wagner has shown conclusively that *when properly placed,* such disabled workers produce more, earn more, have better attendance records, and, in general, better accident records than normal workers.

The implications of this study for industrial safety programs alone are striking. The improvement of the whole personnel procedure, i.e., the hiring of workers; the preplacement examinations; the subsequent proper placement and regular review of placements; the improvement of worker supervision through developing in the supervisor a better knowledge of his responsibilities and opportunities for effective accident prevention; and, above all, greater acceptance by management of its prime responsibility for worker safety; all these are immediate and pressing problems in the industrial accident area, if we are to reach that minimum of industrial accidents that should be expected.

Certain Basic Needs in Accident Prevention

To repeat an earlier statement, a need is a problem until it is met. Following are listed some of the fundamental needs in the field of accident prevention, even the partial meeting of which will bring substantial improvements in the national accident picture.

1. A simply stated comprehensive philosophy of accident prevention that will harmonize the objectives of accident prevention with

[1] Tobias Wagner, *Selective Job Placement* (New York: National Conservation Bureau, 1946).

other desirable objectives in American life is needed, one which will give practical effect to the fundamental guarantees of "life, liberty, and the pursuit of happiness."

2. A truly national approach to the accident problem is an imperative necessity. Such an approach calls for an effective co-ordination, in each area, of all interested agencies, public and private, including all the educational resources of the country. Through such co-ordination, uniform objectives should be developed as the most effective means of bringing about improvement. Such objectives should flow from a national to a state and then to a local level. The Action Program, developed by the President's Highway Safety Conference, points the way in the traffic field. As a part of that program, the work of the proposed National Committee of State Officials, working among the official groups, and the National Committee for Traffic Safety, among unofficial groups, should lead the way to our goal. The same plan should be followed in other fields.

3. More research in regard to why people and conditions produce accidents needs to be done. Too much is done on the basis of speculation, surmise, and probability. Facts are needed. We may be using our efforts carelessly, doing too much where little is needed, and not enough where conditions warrant more effort. Accidents are largely the result of behavior so that all that is known about human behavior, in so far as it is relevant, must become part of the war on accidents.

4. Finally, a great need is for more and more people to become intelligently aware of and concerned with the total accident problem, its calculable loss of billions of dollars per year, its incalculable losses in terms of avoidable and needless tragedy and misery. Every American is needed, not only to help achieve a high standard of material living for the entire country, but to direct his efforts to seeing that his fellow citizens are left alive to enjoy it.

Julien H. Harvey is Managing Director of the National Conservation Bureau.

CONCEPTS OF ACCIDENTS

Robert W. Eaves and Stanley A. Abercrombie

There are two fundamentally opposed philosophies regarding accidents. One holds that an accident is the hand of Fate reaching out to govern the course of human events. The other holds that human beings are self-determining agents who can guide their own destinies and thus avoid accidents. While each of these views doubtless has its own adherents, it is probable that many people accept both philosophies, applying whichever seems more appropriate in a given instance.

An important factor governing people's thinking with respect to accidents is their conception of what the word "accident" means. Let us see how authorities define accident, so that our later discussion will have more meaning. One source defines it as:

> Anything that happens; an occurrence; event. Especially: (1) anything occurring unexpectedly, or without known or assignable cause; . . . (2) any unpleasant or unfortunate occurrence that causes injury, loss, suffering, or death.[1]

Here both points of view are expressed. The one that says an accident is anything occurring without known or assignable cause implies the exercise of a power beyond that of man. The other defining an accident as any occurrence that causes injury, loss, suffering, or death, by omitting mention of cause presumably includes occurrences brought about either by man or by some other force.

A second source defines "lost-time" accident as:

> An unexpected event resulting in injury to a person to the extent that he is unable to perform his duties during a period extending beyond the remainder of the day or shift.[2]

[1] *New Standard Dictionary of the English Language* (New York: Funk and Wagnalls Company, 1938), p. 19.

[2] Carter V. Good, editor, *Dictionary of Education* (1st ed.; New York: McGraw-Hill Book Company, 1945), p. 4.

Here, since no reference is made to causation, an accident is assumed to be an event caused either by Fate or by a self-determining human being.

A third source defines accident as:

> An unforeseen event, occurring without the will or design of the person whose mere act causes it.

In further explanation, this source says:

> In its proper use the term excludes negligence; that is, an accident is an event which occurs without the fault, carelessness, or want of proper circumspection of the person affected, or which could not have been avoided by the use of that kind and degree of care necessary to the exigency and in the circumstances in which he was placed.[3]

Here an accident is conceived as an event caused unintentionally (without the will or design) and which cannot be avoided by the person involved.

Through common usage, the word accident generally is applied without qualification to all classes of mishaps, including those clearly caused by man as well as those clearly caused by a nonhuman force. This double use of the word accident has created undesirable confusion.

It is, perhaps, unfortunate that there are not two separate terms, one for unforeseen and unpleasant events that are in the "act-of-God" category, the other for unforeseen and unpleasant events caused by man. Because so many people consider every event that is labeled "accident" as an act of God, it is difficult to create in their minds the concept that their own human actions, more often than not, spell the difference between safety and danger.

Educators, universally, believe that man can consciously adjust and adapt his own behavior to his environment, that he is a self-determining being. It follows, then, that safety educators believe

[3] Henry C. Black, *Black's Law Dictionary* (3d ed.; St. Paul: West Publishing Company, 1933), p. 23.

man can adjust his own behavior so as to avoid accidents. This belief is the cornerstone of all the work done in safety education. By implication, it is evident that safety educators consider most accidents as resulting from human causation. Otherwise, their work would have little meaning.

Nothing said above necessarily precludes the belief by safety educators that some accidents result from acts of God. But anyone who has studied the problem and analyzed causes of accidents realizes that very few are caused by factors outside the control of man. The first consideration safety educators should attempt to "get across" to their students, then, is the conviction that accidents are of two broad types—the vast majority being caused by man's own acts, and a small minority resulting from causes beyond man's control.

Consider, for example, the relatively common accident wherein a person lighting a booklet-type match, without first closing the cover, ignites the remaining matches in the booklet and burns his hand. What are some reactions on the part of those who have been involved in such an accident?

Some persons to whom this type of accident has occurred have assigned the cause to the match manufacturer. They feel that the particular match used was defective, that it was made so in the factory, and that the manufacturer who made it is to blame.

Others have felt that they themselves were at fault for using the booklet-type match. They suggest that, had they been using a single old-fashioned match, the accident would not have occurred. They therefore assign the cause to their own use of the booklet-type match.

Still others, knowing the occasional tendency of matches to shoot hot sparks in undetermined directions upon being struck, think of such an accident as an act of God. They argue that "it never happened to me before," and thus tend to absolve themselves of blame. Such persons are usually slow to understand the proper preventive measures, and may receive a second burn in the same manner at a later time.

A fourth group assigns the cause of such an occurrence to hurrying at the moment and not having time to close the cover before striking the match. That this analysis is superficial is shown by the fact that persons

striking matches with the covers open invariably close the covers before returning the booklets to their pockets. Since it takes the same amount of time to do this after striking the match as it does before, the trouble lies not in the person's being in a hurry, but in his using the wrong order of steps to do the job.

A few persons who have received burns in the manner described have clearly assigned the cause to themselves for not closing the cover before striking the match. They blame only themselves for the occurrence, fully realizing that they can prevent it from happening again.

Take another example. The scene is a curve on a level stretch of highway. The road is covered with hard-packed snow and ice. The curve is not banked. Several hundred cars have rounded the curve safely. Under precisely the same road and weather conditions, a particular car starts into the curve. In the twinkling of an eye, that car goes into a skid. Its back end slews into the path of oncoming traffic and a collision takes place. What is usually considered the cause of such an accident?

Judging from comments of drivers whose cars have skidded and from newspaper accounts of accidents involving skids, most people believe such an accident is an act of God. Snow and ice were placed on the roadway by a force not controlled by man. A skid and the resulting crash occurring on such a roadway, therefore, is purely an accident beyond the control of man.

Those few persons who critically analyze possible causes of such an accident see first the fact that hundreds of other cars rounded the same curve under the same conditions without skidding. Keeping this fact in mind, their analysis leads them to the logical conclusion that the driver of the car did (or failed to do) something that caused his car to skid. It may be impossible, even for the driver himself, to determine what particular act produced the skid. And whatever it was, it may have been only imperceptibly different from what all the other drivers did. But the fact that many other cars in the same situation and at about the same time negotiated the curve without skidding is convincing evidence that the skid was man-made and therefore could have been prevented.

Consider a freak accident. Painters, using blocks and tackle,

arrange a platform outside the third story of a building. A driver parks his car on the street below while he does a short errand. A rope dangling from the painters' platform is blown by the wind so that the end of it is wrapped around the rear wheel of the parked car. When the driver returns and drives away, the rope, caught in the wheel, pulls down the platform and the painters. What caused the accident?

Most people would consider this a freak accident, and would assign the cause to the wind blowing the rope around the wheel of the car. The wind, being part of Nature, is therefore blamed, and the accident is considered an act of God. A not very penetrating analysis of this accident, however, indicates that the painters who erected their own platform were responsible for leaving the rope dangling and that, by the simple expedient of securing the loose end of the rope, they could easily have prevented the accident.

Although no one would penalize the driver of the car in this case, it is clear that merely by walking around his car before getting in and driving away, he would have seen the hazard and could have prevented the accident that took place.

The almost universal tendency for people involved in accidents to absolve themselves of blame is a challenge to the safety educator. To answer it, he must lead people, through careful analysis of case studies of accidents, and in other ways, to the point where they see the importance of human actions in accident causation.

In helping people to avoid accidents, the safety educator should use psychologically sound methods. Let us consider what this means in connection with some of the goals of safety education.

A broad objective in safety education is that of developing in people the ability to sense a hazardous situation. This ability requires knowledge and understanding of a great many specific hazards, each of which must first be studied at close range and in detail.

The principle implied here, then, is that of beginning with the specific and working toward the general. The human mind can

grasp small things, one by one, and acquire knowledge and develop understanding by degrees as successive situations are studied. Gradually the point is reached where the mind can apply general concepts to specific cases similar to those studied in detail. Finally, the mind is able to apply general concepts to specific situations that are new and unfamiliar. Ability to do this represents the ultimate in terms of sensing hazardous situations before accidents occur.

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It is anticipated that the army's program of military driver training and preinduction driver education, which has been so helpful in this war, will contribute much to highway safety in the postwar period. When this has ended, there will be 2,000,000 expert army drivers who will be available for jobs in civilian society as operators of buses and commercial vehicles.

—Brigadier General W. R. McReynolds
Air Quartermaster, United States Army Air Forces

From attack on Pearl Harbor until January 1, 1944, United States war losses included 32,078 killed, 45,595 wounded, 32,478 missing, and 29,707 captured—a total of 139,858. In the same period, the nation's accident toll on the home front was 190,000 killed and 18,500,000 injured—a total of 18,690,000.

—National Safety Council

Accidents on British highways have had a more damaging effect on life in Great Britain than rockets, flying bombs, and other missiles dropped from the air in enemy action.

—"Britain Scans the Road Ahead"
Public Safety, July 1945

Our supply system was a tremendous surprise and shock to the German Army, and in that supply system, safety engineering played no small part leading to our success.

—Major General Archer L. Lerch
The Provost Marshal General

EDUCATION FOR SAFE LIVING IN THE ELEMENTARY SCHOOLS

David E. Weglein and Mildred W. Fowler

There is no longer need for discussion regarding whether or not we should include safety education in the school program in Baltimore; it is a recognized necessity. Annual accidental death tolls and injuries sustained in preventable home, occupational, and public accidents have caused much emphasis to be placed upon safety work in the schools. The remarkable decrease in the number of fatalities of elementary pupils since a program of safety instruction was introduced into the Baltimore schools offers some proof of the effectiveness of this type of instruction and training for boys and girls.

There is a definite program of safety education in every elementary school in Baltimore. Early in each term, the principal, together with members of the school faculty, selects an adviser to direct the safety work of the school and to head the planning of the safety program and activities for the year. Since this faculty member also directs the activities of the pupil safety council, it is important that he be one who can be a leader among both pupils and teachers. It is the adviser's ability to secure co-operation in determining phases of safety that need to be emphasized in a particular school, and in planning and executing corrective measures that will aid in bringing about necessary improvements, that determines the extent to which the program is successful.

In addition to the safety adviser, an assistant is often appointed to aid in developing and executing plans for the work. This procedure helps ensure the continuity of the program in case of the absence or change of assignment of either one or the other.

While intensive work on safety for a certain number of weeks or at intervals throughout the year may bring about some desirable results, this procedure does not accomplish what a well-planned yearly program can achieve. A "month-by-month" or "year-round"

safety program is therefore planned at the beginning of each school year as a result of conferences between the safety adviser, faculty members, the principal, and delegates from the student body. The program includes those areas of instruction related to the interests and activities of the pupils and of the community of which they are a part. These areas are often determined through a study of the school's accident cards, and through a study of home and neighborhood hazards. Provision is also made for the treatment of hazards at the season of the year when each type is most prevalent. As an example, the safety program of one of the Baltimore elementary schools is here summarized:

1. September
   a) Organize the safety council and safety patrol; election and public installation of officers
   b) Plan the safety program for the year and present through an assembly
   c) Set up rules and regulations concerning the general safety of all individuals in the school building and on the school grounds
   d) Set up a device to mark progress of school in accident prevention
2. October
   a) Participate in the home inspection campaign
   b) Sponsor a school campaign to stress habits of safety and cleanliness in classrooms, on the playground, in corridors, on the stairways, and in the home
   c) Place emphasis upon the prevention of fires and give instruction in the location and proper use of fire-alarm boxes
   d) Discuss Halloween safety and submit for school distribution suggestions for a safe Halloween
3. November
   a) Develop a planned program on safety on the highways; emphasize safety precautions in the use of the highways; roller skates, bicycles, and express wagons
   b) Film an original motion picture depicting the correct way of getting on and off a bus or street car
4. December
   a) Discuss plans for a safe holiday

(1) Safe toys for gifts
(2) Safe shopping
(3) Safety in relation to the use of electricity

b) Prepare a list of "Hints for a Safe Christmas" for parents

c) Contribute a ball containing a safety message for the trimming of the Christmas tree

5. January

a) Emphasize safety in winter sports

b) Check on the progress made with regard to the phases of safety emphasized during the term; further emphasis on some of these will be given as a result of the survey

c) Exhibit the safety work of the first term

6. February

a) Reorganize the safety council and safety patrol; election and public installation of any new officers

b) Make a survey of neighborhood hazards and plan a program as a result of the survey

c) Consider presenting to the Parent-Teacher Association a program based on the results of the survey

d) Discuss safe indoor play and conduct

7. March

a) Plan an assembly in which activities relating to first aid are featured for grades five and six; construct and equip a first-aid cabinet

b) Plan a program in which the lower-grade pupils are taught the correct handling of tools and materials

c) Plan a series of activities in which the pupils discuss simple principles for safety in connection with out-of-door wires; discuss kite flying

8. April

a) Plan a program that will help the pupils gain some knowledge of the safety precautions to be observed in home life

(1) Falls
(2) Electricity and gas
(3) Cleaning fluids
(4) Poisons

b) Arrange a slogan contest in connection with home safety
c) Discuss the proper apparel for rainy April days

9. May
   a) Stress safety in outdoor games as a preparation for the spring meet
   b) Plan a program on "water safety"
   c) Set up an information booth in the central hall where questions on home, school, street, and recreational safety will be answered by pupils stationed there
   d) Exhibit the safety work of the second term

10. June
   a) Elect officers for next term
   b) Plan a series of suggestions for a safe summer
      (1) Examples of activities
         (*a*) Art work
         (*b*) The making of collections
         (*c*) Handcraft activities
   c) Plan a hobby show based on safe summer activities
   d) Review progress made with regard to committee work; award certificates of merit
   e) Discuss needs for the next year

It is understood, of course, that any planned safety program should be sufficiently flexible to provide for safety problems that occur during a school year and that were not anticipated when the initial program was made. It is also quite possible that details with regard to carrying out the program may change as the work progresses from month to month.

Safety education is not offered as a special subject in the elementary schools. It is felt that unless safety-mindedness permeates the entire life of the child in school, at home, and in the community, it fails to achieve its goal. Safety education, therefore, is correlated with the already existing subjects in the curriculum. For example, in social studies in the primary grades, children are led to a better understanding of their immediate environment through a study of the home-life unit. While building, furnishing, and playing in their playhouse, boys and girls gain some knowledge of the safety pre-

cautions to be observed in home life, and some understanding of the need for co-operation and helpfulness in the home. In the arithmetic period, the pupils of the intermediate grades use statistics regarding the number and causes of home and traffic accidents, or other data concerning safety, for making graphs and charts that clearly portray the seriousness of accidents and the need for individual and group co-operation in the prevention of them. In the science class, the children learn safe ways to use electrical appliances and are instructed in the conservation of life and materials. The prevention of infection, use of first aid, and the building of proper health habits are emphasized in the health periods. Throughout the year, topics on safety provide subject matter in English classes. Many conversations, written stories, original poems, letters, debates, and bulletin-board notices have as their basis some safety theme. During art periods, pupils illustrate what they have learned during discussion periods through pictures, diagrams, and posters, and prepare scenery and costumes for plays, pantomimes, or puppet shows.

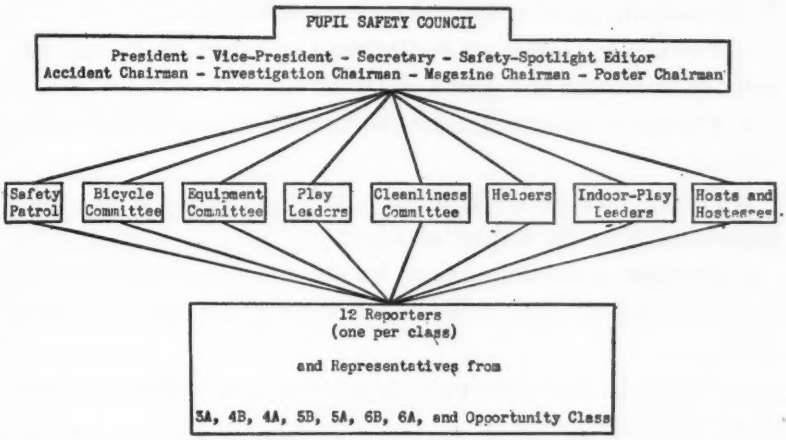
Excursions provide excellent opportunities for the pupils to receive actual practice in the maintenance and development of desirable safety habits. Formulation of plans and rules with regard to transportation, conduct, and general safety practices, usually precedes the trip. After the discussion in the classroom of the plans for the trip, the pupils are given an opportunity to practice in an actual life situation. For example, during the construction of a model of a section of the community in the rear of their classroom, a group of first-grade children decided to include the streets in the vicinity of the school, "stop and go" signs, and automobiles. In order to do this they visited the intersections, observed the location of the signs, and the passing of automobiles. The trip thus afforded them an opportunity to learn, in a very natural situation, how to cross streets safely.

Daily lessons in the classroom are often supplemented by assembly programs as a means for creating school-wide interest and enthusiasm in the subject of safety. The topic that provides the

theme for the assembly may be determined by a study of (1) the accident records of the school, (2) community interests, (3) the season of the year, or (4) national and civic health and safety activities. Through co-operation with the Baltimore Safety Council and other local agencies, motion pictures and speakers suitable for the assembly are secured depending upon the safety topic a specific school is emphasizing at the time. But more than these, the programs prepared by the children themselves for the enjoyment and education of the rest of the school are never forgotten. Practice in the use of safety knowledge is also gained through pupil assistance in handling the stage properties and equipment, in operating and caring for the picture machine, and in seating the audience.

Safety education, like other social subjects involving a change of behavior and a close tie-up with life experiences, cannot be taught effectively by means of printed material only. A step in the improvement of the school's safety program was made during the year 1940–1941 when the Department of Education began to purchase films on safety education that would prove valuable to teachers in planning and carrying out their instructional programs. Each year, additional films are purchased so that gradually a library of films dealing with safety education will be available to all teachers to reinforce all that may be said upon safety.

The junior safety council and the safety patrol contribute greatly to the success of the safety program in each school. The junior safety council is composed of pupils representing the various classrooms. Here pupils have an opportunity for self-government, self-discipline, and self-expression. The problems that the safety council considers are those in which the entire school is interested. Thus, the work of the safety council is made effective by securing the co-operation of the entire student body and by making each student feel that he is an important part of the safety program. The organization of a pupil safety council in one elementary school in Baltimore is noted below:



The school safety patrol is a part of the school safety council. It is composed of pupils who, under faculty guidance, assume responsibilities and duties with respect to the safe conduct of pupils in the school building, on the playgrounds, and at street crossings in the vicinity of the school. The patrol and council work in close relationship with each other; the council unites the entire student body in the study of all safety problems, and then charges the patrol with the specific responsibility of securing desired outcomes with regard to pupil traffic.

A study of the educational values of the safety council and the school safety patrols reveals two distinct types of benefits to be derived. The first of these groups includes values to the entire student body while the other includes values to the individual members of the patrol. To the student body, these safety organizations:

1. Furnish an opportunity for the solution of common school problems through co-operative group effort, and the practice of pupil participation in school government

2. Serve to stimulate pupils in the direction of better school and community citizenship

3. Serve as a means of preventing accidents and as a constant reminder of the need for safety in everyday life

To the student, membership in safety organizations:

1. Provides opportunities for training in habits, skills, and attitudes of leadership and group endeavor
2. Furnishes opportunities for participation in co-operative undertakings
3. Furthers the development of a feeling of personal and social responsibility for the welfare of others
4. Provides realistic situations for the practice of good human relationships, including such ideas as courtesy and consideration of others
5. Fosters the ability to think and act quickly and calmly in emergencies
6. Provides opportunities for the development of wholesome attitudes concerning law and law-enforcement officers
7. Provides opportunities for the development of personality in such a way as to make it possible to get the richest experience out of life as an individual, and to take part successfully in the life of the community.

Through the utilization of these student organizations in the teaching of safety, an ideal opportunity is provided for the direct application of all the accepted theories underlying American education.

It is important for educators to keep in mind that safety is a way of living. We can equip the child with facts about safety that are useful to him and help him understand how unsafe practices affect him; but facts are not enough. The child must also be helped to develop those attitudes, appreciations, and understandings that will enable him to become a desirable citizen. The great loss of life from accidents will be diminished only when the pupils, our future citizens, learn to think, plan, and work together for the improvement and preservation of human life.

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THE SECONDARY-SCHOOL SAFETY-EDUCATION PROGRAM

Gordon C. Graham

"Safety," said a friend of mine, "is a wooden word." The statement was momentarily shocking, but the truth of it and its implications may be a stimulant to a more realistic point of view—a point of view that perhaps those of us who have made safety education a profession are somewhat biased in evaluating the subject from the standpoint of student interest, particularly at secondary-grade levels. Our zeal, born of a desire to conserve life and prevent useless suffering, may provide us with such motivation in our task that we are inclined to overlook its general lack of appeal, when considered in all its aspects, to high-school students.

Safety education is, in reality, in direct competition with many other curriculum subjects which, from a student point of view (superficial as it may be), are far more interesting than studying home accident prevention, fire safety, and traffic hazards. This, of course, is a serious handicap to a subject that is relatively new in the curriculum and is still struggling in many places for its rightful recognition. If safety education is to successfully compete, it must be constantly vitalized with realistic activities and living experiences meaningful to young people.

As in other subject areas, accident-prevention instruction should be progressive learning. It is a reasonable assumption that, after six or eight years of safety education in lower grades, students know the significance of traffic signals and the customary safe pedestrian procedures. Secondary-school pupils feel quite strongly about their near adulthood, and the old approaches to safe walking are considered "pantywaist." We have, perhaps, the greatest need for our "life-of-good-adventure" philosophy at these grade levels to counteract the "no, no, mustn't touch" practices of parents and, shall we say,

unenlightened teachers of the past, whose negations have become abhorrent to the perhaps overconfident youth.

What then are the recommended approaches for safety education in the secondary schools? Safety education may be incorporated in the secondary-school curriculum either by a separate course in safety education, by integration with various existing subjects, or by utilizing both of these avenues. Ideally, this latter plan would seem most effective. Safe practices are not something separate and apart from everyday living; they are components of it. This is the logic that supports the plan of integrating accident-prevention instruction with existing instructional areas.

There is much value in tying together the various aspects of safety education into a single course of perhaps one semester and including home safety, safe practices in public places, driver education and training, and occupational hazards. Steps must be taken, however, to guard against the tendency of teachers to cease giving integrated instruction in their particular subject area, because they feel that the separate course is a substitute for such correlated teaching. The separate safety course should always be supplementary to rather than a substitute for the integrated safety instruction; the latter is properly included as part of the work in social studies, exact science, and language education, in auditorium and vocational classes, and in other subjects as well.

As has already been indicated, the subject matter should have taken into account the changing interests of secondary-school students. Instead of continuing to emphasize the pedestrian approaches, stress should be placed on bicycle problems in junior high schools for example, and upon sound driving practices at senior-high-school grades. The dangers of playing with matches and how to turn in an alarm for fire should now give way to a study of the causes of spontaneous combustion and the economic cost per capita of our fire losses together with the manner in which these costs are paid for as a part of the purchase price of nearly everything we buy. The haz-

ards of swimming in unsupervised waters is more suitable than the poison-ivy story.

As indicated in the very first paragraph of this article, secondary-school safety education must be made vital and realistic, preferably through activities, in order to compete with those curriculum subjects that are inherently more interesting to students. How can this goal be achieved? Citing a few examples may help to clarify this point. The area of safety education that is obviously and inherently interesting to high-school pupils is driver education and training. Practically every senior-high-school student is eager to drive an automobile if he is not already doing so, and such courses meet an immediate and much desired need in his or her daily living experience. This is particularly true where behind-the-wheel instruction is being given. As one teacher remarked: "This is the only class I ever taught that the students run to and walk from."

If we can engender a comparable interest in other aspects of accident prevention by presenting the material in a manner that is more directly applicable to the students' daily experience, it is certain to be more effective. One Detroit newspaper recently sponsored a high-school traffic-safety contest using a plan, developed by school people and the police department, that gave credit for all types of safety activities on the basis of student hours of exposure to safety education in proportion to total enrollment. This included regular classroom activities as well as special projects. Many of these activities were devised entirely by students, and were perhaps responsible for a higher level of accident-prevention instruction than had ever existed before in our high schools. Typical of the many ways in which they tackled this problem were the following:

1. Speech classes made a detailed study of the city's traffic problems and prepared short talks designed to curb effectively unsafe practices. These were presented to homeroom groups and, in modified form, to student groups in near-by elementary schools.

2. A traffic survey was conducted by the pupils of a social-studies class

covering the street areas and intersections in the immediate vicinity of the school. As a result, a number of recommendations were made covering parking, bus stops, streetcar safety-zone relocations and elimination, rerouting of bus lines, erection of pedestrian chain barriers, etc. These recommendations were taken up with the proper city authorities and, in nearly every case, were adopted because of the thorough study that had been made of the problem.

3. A complete bicycle-inspection lane was set up in one junior high school patterned after the automobile-inspection lanes, and every child in the school was asked to bring his bicyle for a safety inspection. Those bicycles passing all tests were given a certifying sticker. This project, under the sponsorship of a vocational class, involved much work not only in the training of inspectors and the developing of proper standards and procedures, but in the actual inspection of the bicycles as well.

4. The English class of one junior high school, in co-operation with the print-shop students, prepared a regular issue of the school paper entirely devoted to safety problems.

5. Visits were made by civics classes to the local Traffic Court, Police Accident Prevention Bureau, Safety Council offices, and other places of immediate interest in the traffic field. These visits were written up later by the students and then graded.

6. One mathematics instructor developed a project in which his students secured much information concerning accidents in the community and then prepared a comprehensive set of graphs and charts based on the data they had assembled.

These are but a few of the many ways in which teachers and, in some cases, students developed new approaches, through activities, to the accident problem, and through this medium were able to engender a higher degree of interest and a presumably more effective learning than is customarily found in the more traditional situation in the classroom.

The high-school students are in our hands today and this is our last chance to bring to them the important skills and attitudes that they will so badly need in the years to come to safeguard them against accidents in a world of ever-increasing complexity.

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FORWARD STEPS IN INDUSTRIAL SAFETY

Verne A. Zimmer

Are we backpedaling in accident control? Preliminary reports of industrial accident-frequency rates for the first half of 1946 indicate that we certainly are. Should the final tally of the year's toll confirm this discouraging development it will not be chargeable to a lack of safety education. It will be largely due to a relapse in safety effort.

There is today a wider spread of accident-prevention knowledge than ever before in our history. For this expanded "know-how" of accident control our recent war experience is directly responsible. The unparalleled need for war equipment and supplies coupled with the withdrawal of millions of men from the labor market made imperative more positive action to protect our remaining force of production workers. With no replacements available, and the bottom of the barrel in regard to labor supply having been reached, high accident-frequency rates spelled almost certain default on delivery schedules. In this situation, safety was literally thrust upon management by government contracting agencies, including the War and Navy Departments, Procurement, and the Maritime Commission. An outstanding example of government pressure for better control of accidents in industry was the policy of the War Department under which contractors were required to provide safety engineers in specified numbers according to the size of the working force. In addition, the War Department employed a corps of full-time safety inspectors to check performance of plants operating under contract. The administrator of the Public Contracts Act (Walsh-Healey) issued specifically recommended safety standards that automatically went out with every contract within the jurisdiction of this law. In addition, the Secretary of Labor issued a mandatory requirement under the same Act requiring every plant with a government contract to keep an accident-frequency record. Prior to the issuance of this order, a survey of several

thousand government-contract plants revealed that only 33 per cent kept any record of accident frequency in their operations. A year following the adoption of this regulation another survey showed a 75 per cent compliance. This in itself constituted a potent medium for safety education since every plant-safety program starts with a knowledge of its accident record.

Another and most effective instrument for promoting plant-management action in safety was the launching and operation of the United States Department of Labor's project of man-power conservation. Under this project, over 30,000 war plants were reached by volunteer safety engineers; they were augmented by a small full-time field staff. These men were essentially safety salesmen whose principal object was to persuade management of the imperative need for accident control at the plant level and to advise and to demonstrate incidentally how the control could be effected. These men made many converts to safety. In hundreds of instances they were successful in creating interest and action on the part of managements heretofore indifferent or uninformed about accident control.

Concurrently with this plant-to-plant safety promotion and jointly with the United States Office of Education, the Department launched a nation-wide safety-training project. More than 100 engineering colleges throughout the country sponsored safety training classes. In three years, approximately 65,000 foremen and lead-men from industry received intensive and realistic instruction in practical methods of preventing on-the-job injury. The possibilities of safety training courses had been well explored and demonstrated by New York University's Center for Safety Education. However, war-created necessity—and the availability of federal funds to the extent of several million dollars—made it possible to bring directly and quickly to the production lines a knowledge of safety techniques and practices that had been well tested and proved in the school of experience.

It is interesting to recall that Albert Whitney, a pioneer in the

field of safety education, said of this safety-training project: "It is the most significant single contribution to industrial safety in the past two decades. We should take advantage of the impetus given to the safety training idea and set about promoting permanent safety courses in all engineering schools of the country, as well as the integration of safety subjects and factors in all engineering curricula."

The intensified program of the National Safety Council during the war period along with a comparable increase of activity by local and state councils, the speeding up of safety code formulation procedure by the American Standards Association, and greater participation by labor groups in the safety movement, all have contributed materially to the stimulation of organized safety effort during the past five years. As a result, there was a marked decline in over-all industrial-accident rates during the last twenty months of war production. In the face of such practical difficulties as hurried production, congested factory space, and inexperienced workers, this reduction of accident tempo was an outstanding accomplishment. The same amount of energy and effort carried on under normal peacetime industrial operations would undoubtedly reduce the annual casualty toll by at least 50 per cent.

Unfortunately there seems little likelihood of an uninterrupted continuance of recent gains in accident control. Indeed, the evidence indicates that not only has our forward movement been halted but, temporarily at least, we are moving backward. Accident data for more than 10,000 manufacturing concerns reveals an aggregate rise in frequency rates during the first quarter of this year as compared with the same period in 1945. Workmen's compensation reports from administrators in all leading industrial states show an increase in the volume of injury cases during the first half of 1946 over the same period in 1945—this in the face of an actual reduction in total employment. Some apologists in the safety movement attribute this relapse to such nebulous causes as "unsettled conditions" and "economic chaos." There is at hand, however, a much more probable and more prosaic explanation. As already pointed out,

safety was sold to thousands of managements during the war years by the pressure of the compelling need to conserve man power. The fact that no job applicants were waiting at the factory gates as possible replacements was in itself a safety argument easily understood by employers hitherto unresponsive to other forms of logical persuasion. Although it is probable that a large number of these emergency converts will remain in the safety fold, a certain percentage of relaxation must be expected. Many managements, particularly of smaller industries, are not inclined to take the trouble to study the economic advantages of maintaining vigorous accident-control programs. From a superficial observation, they see perhaps too little immediate gain in savings of compensation insurance premiums to justify the necessary outlay of time and money for the elimination of accidents. Contributing to this attitude, undoubtedly, is the haunting persistence of the ancient fallacy that accidents are bound to happen.

A further explanation of our halted safety progress can be attributed to safety "coasters" among managements. This term aptly applies to concerns that substantially reduced accident-frequency rates during the war but are now inclined to rest on the record and are proceeding to retrench by reducing safety personnel. Managements longer experienced in operating safety programs know well that this coasting inevitably means an upward turn in accidents. Relaxation of positive safety action on the part of management inevitably is followed by relaxation of alertness on the part of workmen.

If we are to hold the gains already made in accident control and to advance further toward adequate protection of millions of wage earners against work hazards, there must be no coasting on past records; no relaxation in efforts to sell safety to managements still unsold; no suspension of safety-education projects that increasingly spread the knowledge of how accidents can be prevented.

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THE PSYCHOLOGY OF SAFETY AND SAFE HUMAN CONDUCT

A. R. Lauer and Milton D. Kramer

It is more in the realm of science to discuss the *how,* rather than the *why,* of the sequence of events in any area. With a liberal interpretation of the *why* set forth, we hope to explain some of the basic psychological antecedents in the chain of events that lead to accidents.

As a basis for approach, we may set down the reaction hypothesis as a fundamental basis or point of departure. For every stimulus, there is a response. This is generally stated in the conventional formula used by psychologists, and others, as:

$$S \longrightarrow R$$

Accepting this hypothesis as a basic concept, it follows that one does not respond unless he is stimulated. The first question that arises is, why will not everyone respond in the same way? To answer this involves going much more deeply into the problem. In general, we may say that stimuli do not react on all persons all the time since different people are in different stages of readiness to react. This may be due to a number of causes that are duly analyzed.

In the first place, we are confronted with what may be called a primary-reaction system. It is the organism in an untrained, natural, normal state. Under such conditions, it would be relatively easy to estimate or determine the most probable reaction to a given situation. But this condition rarely exists. It is complicated by myriads of experiences, anomalies of structure, toxic effects, injuries, defects, and other conditions that tend to change or modify the responses following from a given stimulus. Ideally, the primary-reaction system may be classified into categories or segments of response somewhat as follows:

S ——————————————————→ R

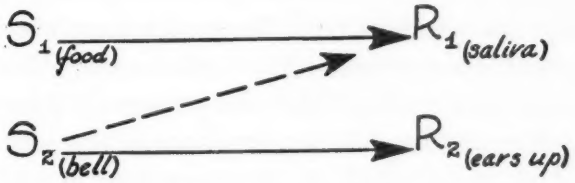
Stimulus Mechanisms (*Sense Organs*)	Reaction Center (*Brain and Central Nervous System*)	Response Mechanisms (*Muscles and Glands*)
Visual	Intelligence	Strength
Kinaesthetic	(8 or 9 types)	*Co-ordination
Tactual	Emotions	Activity
Equilibrium or static	*Knowledge	Reaction time
Olfactory	*Temperament	*Endurance
Pain	*Attitudes	*Consistency of response
Cold	*Mental Habits	*Physical habits
Warm	*Judgment	
Organic		
Auditory or olfactory		
Tasty or gustatory		

Many of these factors are basically inherited. Those that are mostly due to environmental effects are starred. If we analyze the antecedents of any unsafe act, we find it goes back to this fundamental system. Suppose a man drinks more than he should and gets into an accident while driving. In the first place, why do people drink? Largely because of an inherent glandular imbalance. Being unable to satisfactorily adjust to their environment, they seek the easiest outlet and nullify this dissatisfaction by heavy imbibing. The habit forms due to the satisfaction obtained from liquor's narcotic effect, which is primarily a depressant.

To understand the secondary-reaction system after it is modified by environment, we must study carefully the process of conditioning. Dr. Pavlov, the eminent Russian physiologist, originally demonstrated this phenomenon by studying the behavior of dogs. Every student of elementary psychology is familiar with the following scheme of how a conditioned response is developed.

Here S is the stimulus and R the response. Whereas S_1, or the food, elicits the response of R_1, saliva flow, by sounding the bell S_2, at the same time the food S_1 is presented and the two are associated. Finally S_1 becomes unnecessary, and S_2 will elicit the response R_1, as shown by the dotted arrow. This is a conditioned response. We may know better than to make an unsafe move, but the lower brain

centers in the *thalmus* are less easy to change than the higher brain centers, and thus we are predisposed to react on a secondary level



rather than on a primary level. This is an accepted psychological explanation of why a man will drink and then drive when he knows it is a dangerous thing to do.

Most of our attitudes develop the same way. Our religious, political, racial, safety, and other attitudes are conditioned responses. An attitude is really a crystallized emotional set, an emotion which has become a habit or conditioned response. It was not present natively but has come to be a potent influence in our behavior. Originally, it depended upon some basic sensory stimulus, but may now be attached to almost any secondary or related experience.

A man may drink first to forget his feelings or nervousness. Later, he associates alcohol with his friends and may drink or crave drink far beyond the point at which he would when he first began drinking. Finally, it becomes so ingrained in his habit patterns that he drinks because he likes to do as he pleases, or because his wife objects to his drinking. Liquor finally becomes necessary to life. It is vital to him. It is the essence of democracy. And thus an undesirable and dangerous attitude is born.

Now if a man can drink what he likes, when he likes, he can also drive as he likes, when he likes. A set is established in his psychoneurological make-up. The higher critical centers are affected. He becomes what the layman calls a reckless driver. Recklessness to the psychologist is only a category to include many specific attitudes that the layman in science does not place satisfactorily. Hence, in the

foregoing, we have attempted to trace the development of an attitude, good or bad. An unsafe act usually is related in some way to an unsafe attitude. At first one may take chances in passing because he cannot judge distance. After a time, he does it because others remark about his skill at the wheel, and he is then socially conditioned. Later, he may even attribute falsely his prestige for promptness—itself a result of early conditioning—and may be very conscientious in his need for passing vehicles at any time or place in order to keep an appointment.

In the case of a child, he may turn out to be "spoiled," as the expression goes. This is another situation in which the primary-reaction system is superseded by the conditioned or secondary-reaction system. From this, it follows that at birth one has no propensities toward good or evil, toward safety or the lack of it, for or against religious beliefs, toward moral or immoral conduct. He is simply unmoral and noncommittal mentally toward dangerous situations. The manner in which his habits are formed determines the type of individual he becomes. In matters of safety, he must be conditioned or taught to act safely.

It is the psychologist's problem to determine what types of behavior lead to accidents and to attempt to control and set up conditions so that primary or secondary behavior patterns will not get the individual into trouble or cause him, willingly or unwillingly, to commit unsafe acts. To ascertain the precise psychological factors antecedent to specific unsafe behavior requires a very careful analysis of the situation. It requires a great deal of training and experience that can only be obtained by a long study of accident situations.

When a mother in her home insists on allowing children to scatter toys at random and grandma steps on a ball and falls, we call it an accident. A number of attitudes, formed over the years, enter into such a simple accident picture. In the first place, grandma has in some way taught her children, or developed the attitude in them,

that small children should not be held to any system, that it is bad for the personality and may develop complexes. Having such a philosophy, daughter is very lenient with her own children and becomes careless in her own conduct. This is called induction of behavior. Enthusiasm breeds enthusiasm, and laxity breeds laxity.

Again, children raised under such a philosophy develop an exaggerated egocentricity and become indifferent to the rights of others. Later, they will, among other things, become the adult "road hogs," unless new and more desirable attitudes are created.

The problem is further complicated by the fact that accident causation is not always a simple matter. Professor Tilden of Yale University has shown that at least three contributing factors may be found in every fatal traffic accident. The elimination of only one contributing factor out of five or six may avert a mishap. Conversely, one factor alone may exist in exaggerated form without leading to serious consequences. This accounts for the fact that many persons with bad attitudes seem to escape serious accidents.

These complications need not excuse, however, the vigilant search for psychological or other conditions that lead to accidents. On the average, the fewer the contributing causes, the lower the accident toll will be. The more desirable attitudes we build up, the safer world we will have.

To come back to the original problem of identifying psychological conditions that lead to accidents, we may summarize under three headings, viz.:

1. Defects, lack of perceptual training, or inadequacy of the various sense departments sufficient to warn the individual of danger. We have listed them in order of importance, so far as it is possible to do so.

2. Factors relating to the central processes, such as intelligence, inadequate knowledge, emotional patterns, thought habits, attitudes, poor judgment, etc. Poor judgment usually can be traced to low intelligence and lack of experience or knowledge.

3. Factors that depend upon the reaction mechanisms proper; such as paralysis, weakness, lack of endurance, coordination, and similar factors in the motor system. These are equally a part of the psychomotor mechanism, and may well be identified as primary causes of accidents.

Further, we should state that these three systems interact. A driver may avoid trouble by compensation. Thus one-legged drivers have better records than two-legged drivers simply because they concentrate their capacities and abilities on category *A* or *B,* and thus compensate for the lack in category *C*.

Since almost everyone has some inherent or acquired weakness, it behooves him to seek sound psychological advice on his condition in order to obtain the maximum degree of compensation. Overcompensation is equally bad and tends to become a hazard in itself. For example, a timid driver may move so far to the side of the road to avoid danger that he will go into the ditch.

We have touched only on essentials in this paper. If we were to consider the field of abnormal psychology alone, it would break down into a volume of the various types of abnormal conditions, including paranoia, schizophrenia, epilepsy, and the various neurotic and psychotic conditions that may easily lead one into an accident. Abnormal conditions themselves are frequently designated as purely functional, and hence mostly highly crystallized, attitudes. This principle is recognized in practically all sanitariums. Thus an insane person may develop an attitude of fear, persecution, etc. Many drivers on the highway are really suffering from mild insanity. There is not the sharp line of demarcation between sanity and insanity that the legal profession would have us accept.

The reader is directed to use his own imagination to fill in examples of how attitudes create unsafe conditions of living, and how education can function to develop and create attitudes of safety in every walk of life. Primitive man braved, deliberately, the dangers of life and fought bloody personal fights. Medieval man used coats

of mail and armor to protect him from the weapons of the enemy. Modern man uses more remote weapons of destruction, but is considered nevertheless heroic for his defensive tactics.

Similarly, attitudes of defensive behavior toward the dangers of peacetime living must be developed by proper educational techniques and learning devices. Such procedures must be founded on sound psychological principles in regard to the development of behavior.

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"There is nothing in the whole range of experience that impinges so directly upon life and at such an early age as the problem of safety. The baby begins to learn safety precautions as soon as he begins to creep, and his education goes on throughout his life. The survival of the fit has been the survival of the safe, using the word in its true sense, and the development of safety in its broader aspects has been the basic element in the unfolding of the evolutionary pattern. This development, furthermore, has by no means been concerned solely with the problem of accidents. Safety from purposeful attack has been far more important in nature than safety from accidental injuries." (From Albert W. Whitney in *Education for Safe Living,* New York: Prentice-Hall, Inc., 1942.)

"A safe and satisfactory world is one in which the processes of life, whether they deal with the relation of the individual to his material environment or with his relation to his fellows, are carried on in essential conformity with an established order in which the conditions of life have been brought under effective control. Safety, then, is a product of a well-ordered world; and the existence of accidents and of purposeful attack indicates that this order has not been entirely effective." (From Albert W. Whitney in *Education for Safe Living,* New York: Prentice-Hall, Inc., 1942.)

GREATER SAFETY FOR OUR YOUTH— AN AMERICAN OPPORTUNITY

Herbert J. Stack

Security and safety are foremost in the minds of all men and women. From time immemorial, mankind has sought protection against the dangers of his environment, from fire, flood, drought, wild animals, insects, diseases, and from many others. Safety and security are two goals toward which all aspire, and upon which man's happiness depends. The infant and the growing child show the greatest physical and mental development when security prevails while they are growing up. Nations, likewise, experience the greatest periods of growth when there are freedom and security. Year by year, man has conquered many of the natural dangers of his environment. It would seem that the world should be a far safer place in which to live. Yet, while natural dangers have been conquered, new dangers have been created. The tremendous technological advances of the machine age have created new hazards that must be controlled. In a single generation, we have created a myriad of new machines, new devices, poisonous substances, and high-speed transportation equipment. The world, instead of becoming safer, appears to be growing more dangerous, while no one knows what the atomic age will bring us.

The last decade has been one of the most unsafe periods in the history of the world. War, pestilence, and famine have run rampant and countless millions have lost their lives in the terrible slaughter that swept like an unchecked fire over most parts of the world. Famine rampant abroad is now facing mankind: untold millions suffer from malnutrition, starvation, and disease. And the end is not yet in sight. Returning veterans tell of the gross wretchedness that exists in India, China, Japan, Africa, and in many European countries, where life is very cheap but food and property very dear. We

thank Providence for our land of plenty, for the great wheat fields of our West, and for the granaries that hold the staff of life. By sharing our harvest, we are saving millions from starvation.

Despite the chaotic conditions that are now present following this most terrible of wars and in spite of the fact that we are living in such an unsafe world, there are many indications that progress is being made toward greater security and freedom. The United Nations organization, the United Nations Relief and Rehabilitation Administration, and other international agencies organized to preserve the peace and bring about the four freedoms are good examples of what can be done to provide greater security for all. We believe that nations can learn to eliminate wars and the other dread "Horsemen" that have ravaged the world. We believe that the world can also find controls for the atomic age, which may be just around the corner.

Medical Science Makes Great Strides

In the last decade, medical science has made great strides in reducing the number of deaths due to disease. The need for greater protection of our armed forces has stimulated our doctors and scientists to discover new drugs, vaccines, antitoxins, and other treatments and preventives of diseases. Sanitation officers of the Army have told us that in the thousands of army camps during the last war there were almost no epidemics from bad water or unsanitary conditions. One by one, the diseases that were so common a generation ago are being brought under control. Yellow fever, diphtheria, scarlet fever, smallpox, and other infectious diseases have been practically wiped out. Even tuberculosis, the pneumonias, and influenza have been greatly reduced. The sulfa drugs have greatly lessened mortality from blood poisoning. Penicillin and allied drugs are being used to wage war against many diseases, insulin controls diabetes and streptomycin combats the deadly streptococcus infections. To these must be added the remarkable vaccines and antitoxins, the

new antiseptics, and the brilliant surgical operations into the inmost recesses of the body. Then, of course, there are the vitamins for which new uses are being discovered almost every month, the most recent of which is the use of heavy dosages of Vitamin *D* for arthritis.

It is necessary to include in our discussion the brilliant achievements of medical science in the treatment of epilepsy, which practically eliminate *petit mal* and greatly reduce the more serious *grand mal*. Special praise should be given to medical science for improved methods in psychiatry and for the treatment of both the mild disorders of the nervous system and the more serious psychoses and neuroses. An increasingly larger percentage of patients sent to hospitals for mental diseases are being cured. There remain only the heart and blood vascular diseases, cancer, infantile paralysis, and certain others to be overcome.

Mankind is surely winning the war against disease, and life expectancy is steadily rising. We are aiming at the eradication of all diseases, and as Louis Pasteur wrote: "It is within the power of man to cause all parasitic diseases to disappear from the earth."

Fight Against Preventable Accidents Intensified

But there is another area in which our ability to control our environment has not been as successful as in the struggle against disease. It is the fight against preventable accidents. Because of an increase of more than 50 per cent in traffic accidents in 1946 over the 1945 level, a losing battle is greatly feared. Have you ever thought about the seriousness of our accident problem? Here are a few startling facts:

1. Accidents in this country during the war years caused a far greater number of deaths, as well as ten times as many other casualties as occurred among our soldiers and sailors killed or wounded on the field of battle.
2. During the school-age period, accidents cause more deaths than ten

common infectious diseases put together, and considerably more than the heart diseases and tuberculosis, which rank second and third.

3. Accidents not only resulted in the loss of life of nearly one million persons in the last decade, but also caused an economic loss of over six billion dollars each year—twice as much as the entire cost of public education for one year.

4. And finally, a great percentage of these accidents, especially those that occur to children, are definitely preventable, quite as preventable as diphtheria and typhoid fever.

Just as medical science and health education have found controls for disease, so safety scientists are developing controls for accidents. Accidents for the most part are indications of a lack of control of the forces surrounding us. A fire breaks out from an overheated chimney and gets out of control. A driver, obviously intoxicated and with physical and mental functions impaired, speeds recklessly, loses control of his car, and disaster follows. A home owner allows loose electrical wires that are worn or poorly installed to lie about his home, and a baby playing with the wires is electrocuted.

The Task for Education

What, then, is the task for education in the face of these facts? What can teachers do to aid in this war against preventable accidents? It is generally agreed that the best solution in the war against accidents lies in education. An illustration is now in order. Many cities and towns in the nation are working to reduce traffic accidents. They are using three kinds of controls: (1) engineering techniques, such as traffic lights, stop signs, pedestrian crosswalks, traffic lines, and the like; (2) the work of the police and the courts to enforce regulations and ordinances by fines and arrests (this might be called compulsory education—learning the hard way); (3) education. If a driver fails to stop his car at a stop sign or a red light, if a pedestrian neglects to take proper precautions, or a bicyclist rides

on the wrong side of the street, engineering and enforcement controls are of little value. The community will be safe to the degree that its school children and adults practice safety in their everyday use of the streets and highways.

What then should the schools do to prevent accidents? It has been clearly demonstrated that a well-rounded school safety program in a community does reduce accidents. As a matter of fact, in a ten-year period, in the traffic field alone, it is estimated that the lives of over 25,000 children have been saved as a result of safety education. Health and safety should be basic in the school curriculum and not taught, as they are in some schools, "when there is enough time," or "after everything else is done." A child profits little if he gains command of the fundamental processes of reading, writing, and arithmetic, only to lose his life or be seriously injured because he has not been taught *how to be safe.*

What Middletown Is Doing

Middletown is a typical American community where schools are alert both to the needs of children and to their responsibilities in community life. Perhaps it is a bit like your town. The superintendent of schools, the school principals, and the teachers in Middletown believe in safety education. The superintendent belongs to a civic club and knows how his associates feel about industrial safety, fire prevention, and school safety. He is close enough to community problems to see the real needs. He knows that serious accidents hurt his schools, just as the high-school coach knows that bad accidents cripple his chances for developing a winning team.

Safety education is taught in all of the schools of Middletown—both elementary and secondary. Each elementary school and the junior high school have well-organized safety patrols supervised by teachers and aided by the town police. The program includes all phases of safety: traffic, home, fire, recreational, water, and vocational. Police and fire departments co-operate with the schools in

many ways, and there is a safety-education committee in the community safety council, on which they are represented. Teachers stress various hazards on a seasonal or monthly basis. They even teach swimming safety and water safety in the spring months, and though there are no pools in the schools, there is one at the Y.M.C.A. and at several playground pools.

The teachers have also learned that there are better ways of teaching safety than by having children learn rules and slogans, sing safety songs, and do arithmetic problems. Such lessons have proved to be comparatively ineffective. Instead, Middletown teachers use practice lessons, demonstrations, visual aids, and dramatizations. Such lessons penetrate deeper. The teachers know that safety is not simply something to be memorized—it is something to be *lived*. It is not alone a matter of giving information about some hazard, rather it is the larger problem of developing actual skills and practices and encouraging proper attitudes. A child may *know* about safe practices in the use of a bicycle but his *actual* practices and attitudes are what count.

You should see what Middletown High School is doing for its students! The coaches are including athletics accident prevention as a part of their training program. Accidents in the gyms are rare because the instructors have activities under control. Fire prevention is being taught by the teacher of general science and chemistry; home safety, by the household-arts teacher; and farm safety, by the teacher of agriculture. Bill Eaves, the instructor in social studies, is a great hunting and fishing enthusiast. He has a club of boys and some girls that meets regularly, and Bill gives the youngsters rifle practice and instruction in the use of firearms. Unimportant you may say, but at least half the boys in the upper classes have hunting and fishing licenses.

Last year, 220 students were in the graduating class. Over one half of the number had taken a thirty-hour course in driver education offered by Fred Smith, the science teacher, and Mr. Williams, the

school principal. The highway patrolman came up to the school and gave tests when the courses were finished. Those who passed were given certificates that waived the state examination (except the road and eye tests). True, Middletown High School was not able to offer road instruction because it could not get a dual-control car. But parents of youngsters helped in a home-school co-operation plan of road instruction, and over seventy students actually passed their driver's license test before graduation.

This means that over 100 had classroom instruction, while 70 actually passed all tests before graduation. Will they be better drivers? Well, Middletown thinks so. Middletown is leaving nothing to chance! It knows that it cannot have top-notch athletic teams without sound coaching, just as it cannot have good dramatic or musical organizations without proper instruction. One cannot take chances with untrained drivers at the wheels of 100 horsepower cars.

Safety, you can see, has come to Middletown to stay. "It is not something extra," the chemistry and industrial-arts teachers say, "It is just good teaching." "It is putting first things first—and safety is a first thing." As the chemistry teacher says: "There is no need of knowing about the valence, molecular weight, and vapour density of carbon monoxide, if you do not know that automobile exhaust gases contain carbon monoxide in deadly quantities. You can be happy and successful in life if you forget some of these facts that will help pass examinations, but if you should run your motor in a closed garage, you will soon be in the obituary column."

Safety is a byword in Middletown. It is noticed among the children as well as among the adults. It is a safe city in which to live. When a hazard arises, such as coasting on hills in winter months, the police chief and superintendent get together and set aside coasting streets. Middletown had a fine record last year and won honorable mention in the National Safety Council contest as one of the safest cities of its size in the country. Next year it is after the first

place. Now it did not win this award by chance; Middletown won it by careful planning and hard work. It keeps accident records and uses them. Its schools use books, posters, and visual aids. Middletown tries to control its hazards—and looks to the schools for the important job of education.

Research Needed to Find Remedies

It is important to call attention to the work of the safety scientists, especially those in the field of education. They are, for the most part, research students working at various colleges, usually for the doctor's degree. During the past decade there have been some valuable research contributions (over thirty at New York University's Center for Safety Education).

Mention should be made of a few of these because they have far-reaching implications for safety. For many years, crippled persons, amputee war veterans, and others with orthopedic disabilities resulting from poliomyelitis and other diseases were not allowed to drive. Although in certain states some were given restricted licenses, it was felt that they were not safe drivers. A series of research studies were undertaken at New York University and by the Society of Automotive Engineers. What do you think was found? Not only were these disabled persons as safe as normal drivers when they operated cars equipped with special controls, but they were actually safer. What followed? At army and navy hospitals, thousands of amputee veterans and those with other disabilities have now been taught to drive.

Ten automobile manufacturers have equipped cars with such special controls. This car can be operated safely by persons without legs and with one good arm and a hook on the other. States are licensing such drivers, and one manufacturer now equips cars for disabled veterans without additional cost. Do you not now see why achievements of this kind are important? There are several hun-

dred thousand persons with such disabilities in this country and if they can learn to operate vehicles safely, they may now enjoy the pleasure and the privilege of driving.

Another important piece of research was completed a year ago at New York University by Dr. Tobias Wagner. Industries for many years have been reluctant to employ handicapped persons. It was claimed by many that they were not safe and that they were inefficient. But what did Dr. Wagner find in his two-year study?

Briefly it was this: "Orthopedically disabled industrial workers, when properly placed, are not only as safe as normal workers, but they actually are more efficient, that is, they produce more, are paid more, have less sick absenteeism, and are better workmen." Do you not see the importance of studies of this kind? Think of it—disabled drivers can be safer than normal ones! Disabled workers can be more efficient than those without disabilities.

These are but two of the many research studies that are helping build up new controls against accidents just as medical science is finding new ways of preventing diseases. New techniques are being discovered and new practices standardized.

Another excellent study by Dr. Flanders Dunbar at the Columbia University Medical Center shows why some people are accident prone. It has been known for years that some children have ten times as many accidents as others; some drivers have repeated accidents, often four or five a year. Dr. Dunbar studied hundreds of hospitalized cases. Some of her conclusions are almost amazing. She pointed out that, in some cases, drivers who deliberately take risks may be obeying a subconscious wish to hurt themselves or are seeking means of attracting the attention they crave. Or again, accidents offer an escape from an intolerable situation at home or in the office.

Dr. Dunbar adds that if you are restless, impulsive, happy-go-lucky, a good mixer, fond of sports, gambling, or going places in a hurry, you may be accident prone. Chain smokers, persons with low blood pressure, those who bang into doors, cut themselves while

shaving, or are always blaming someone else for their troubles tend to be accident prone. Similarly, there are those persons who attempt to drive after drinking, and those who "fly off the handle" or who have poor emotional control.

In a world in which there are many inherent dangers to life, certain basic controls are needed. As can many of the other disasters that cause untold suffering, wars can be prevented, floods can be reduced, famine can be controlled. In the same way, we are rapidly moving forward to the control of all types of diseases and, year by year, reducing the mortality and increasing the life expectancy. In exactly this same way we can win the war against preventable accidents, if we can but find the basic causes and remove them.

The chief force in this war against accidents is education. The safety of millions of our children depends, to a large extent, on what goes on in the classroom and outside during their school years. This does not mean restricting the adventures of children. It means rather encouraging good adventures. It means more athletics, more swimming, more driving, more camping and hiking, but at the same time, doing away with the stupid mistakes in life that end happy adventures. The words of Pasteur can be paraphrased: "It is within the power of man to cause all preventable accidents to disappear from the earth." What greater contribution can the schools make than to help bring this about.

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TYPICAL PUBLICATIONS IN THE FIELD OF SAFETY

(This listing includes but a few of the representative books in the field)

School Safety

American Association of School Administrators. Eighteenth Yearbook, *Safety Education*. Washington, D. C.: The Association (1201 Sixteenth Street, N. W.), 1940. Pp. 544.

Hawkins, Charles C., *et al. Fire Prevention Education*. New York: The National Board of Fire Underwriters (85 John Street), 1945. Pp. xvi + 355.

Hyde, Florence Slown, and Slown, Ruth Clara. *Safety Programs and Activities*. Chicago: Beckley-Cardy Company, 2d rev. ed., 1938. Pp. xv + 269.

National Education Association. *Safety Education for Teachers*. Washington, D. C.: The Association (1201 Sixteenth Street, N. W.), 1946. Pp. 62.

National Safety Council, Inc. *Accident Facts*. Chicago: The Council (20 North Wacker Drive), annually.

National Safety Council. *Safety in Physical Education and Recreation*. Chicago: The Council (20 North Wacker Drive), 1941. Pp. 95.

Noble, M. C. S., Jr. *Pupil Transportation in the United States*. Scranton, Pennsylvania: International Textbook Company, 1940. Pp. xxiv + 541.

Patty, Willard Walter, *Teaching Health and Safety in Elementary Grades*. New York: Prentice-Hall, Inc., 1940. Pp. xxi + 371.

President's Highway Safety Conference. *Education*. Washington, D. C.: The Conference, 1946. Pp. 27.

Rosenfield, Harry N. *Liability for School Accidents, A Manual for Educational Administrators and Teachers*. New York: Harper and Brothers, 1940. Pp. xvii + 220.

Stack, Herbert J., Hawkins, Charles C., and Cutter, Walter A. *Careers in Safety*. New York and London: Funk and Wagnalls Company, 1945. Pp. viii + 152.

Stack, Herbert J., and Siebrecht, Elmer B. *Education for Safe Living*. New York: Prentice-Hall, Inc., 1942. Pp. xvii + 388.

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Judson, Harry H., and Brown, James M. *Occupational Accident Prevention*. New York: John Wiley and Sons, Inc. Pp. vi + 234.

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National Safety Council. *Safe Practices Pamphlets*. Chicago: The Council (20 North Wacker Drive).

Resnick, Louis. *Eye Hazards in Industry*. New York: Columbia University Press, 1941. Pp. xx + 321.

Public Safety

American Association of Motor Vehicle Administrators. *State Official Guidebook for Traffic Safety Education*. New York: National Conservation Bureau, 1942. Pp. x + 138.

American Automobile Association. *Sportsmanlike Driving*. Washington, D. C.: The Association, 1936.

Brody, Leon. *Personal Factors in Safe Operation of Motor Vehicles*. New York: New York University Center for Safety Education, 1941. Pp. viii + 96.

De Silva, Harry R. *Why We Have Automobile Accidents*. New York: John Wiley and Sons, Inc., 1942. Pp. xvii + 394.

Toops, Herbert A., and Haven, S. Edson. *Psychology and the Motorist*. Columbus, Ohio: R. G. Adams and Company, 1938. Pp. vi + 265.

Whitney, Albert W. *Man and the Motor Car*. New York: National Conservation Bureau, 1941. Pp. xi + 287.

SIGNIFICANT DEVELOPMENTS IN EDUCATION

Agencies of Social Progress in Barren County, Kentucky

The progress noted in Barren County in the past twenty-five years has been effected by many agencies, some acting co-operatively and some acting independently. We should like to examine some of the more significant ones in some detail.

At the outset, it is unfortunate to have to indicate that the schools and churches or the educators and ministers have exercised no noticeable influence in this progress. The schools have figuratively stood on the sidelines and watched the parade go by. I hope in another article to indicate just what has happened to the schools.

The church, an institution assumed to be concerned with the advancement of culture and social welfare, has been concerned with the "saving of souls" and building church membership and not with the general well-being of the citizens. Little change has been made in the churches in the past twenty-five years as far as could be observed. Then, they did not feel that they were concerned with poverty, misery, ignorance, social incompetence, and other social needs such as sickness and disease. They regarded these conditions as the visitation of Providence that nothing could be done about—at least by the ministry. This same notion seems to prevail today.

If we rule out these two community-supported institutions whose primary function is that of education directed toward social progress and change, we shall have to discover elsewhere the agencies of progress. First of all we shall mention the Tennessee Valley Authority. Barren County is on the edge of the area affected by this authority and it receives the benefits of the cheap electric light and power that has provided modern conveniences for the home, home gadgets for cleanliness and health, power for dairy machinery, and other machinery for the preparation and conservation of food. This cheap electric power, then, has made possible the modernization of homes and certain aspects of the farm that would not have been possible without the Authority.

A second factor is the road building. Roads are both a part of the progress noted and an agency of progress. Without them, few of the changes noted could have taken place in the county. The roads, moreover, are

the result of the joint activity of the county and state governments under the stimulus of the chambers of commerce and other service bodies of the county. The initiative, as a matter of fact, came from the service organizations, mainly the Chamber of Commerce at Glasgow, and we can say that these organizations are primarily responsible for the roads and indirectly responsible for many other improvements.

Electricity and roads are basic factors of all progress in the county and they need to be explained before we come to the crux of the matter which is the county agent supported by the "Federal Government," and the county government working in co-operation with the state College of Agriculture of the state university. This agent who has worked continuously for the twenty-five years, beginning his work in 1920, has effected an organization called the Barren County Rural Planning Council composed of twenty-five organizations, representing every interest in the county and working co-operatively for the improvement of the county's agriculture and industry.

The work of this council has been so remarkable that a fuller explanation of its composition, organization, and purposes are necessary. The most important representatives are the farm bureau, the homemakers organization, the Four-H Club Council, the Livestock Breeders Association, the Sheep Growers Association, the Poultry Association, the Dairy Club, the Soil Improvement Association, the American Legion, the board of education, the health department, the county government, the service clubs, the chambers of commerce, etc. The planning council is made up of one representative from each of the member organizations and the council formulates the program to be administered by the county agent and his staff.

The agent works through nine committees, formed from the membership of the planning council as follows: (1) aims, objects, and goals; (2) school improvement; (3) farm home improvement contest; (4) model neighborhood contest; (5) crop-yield contest; (6) Four-H Club; (7) roads and telephones; (8) finance; and (9) publicity. These committees represent every person and agency in the county and bring the whole population actively and co-operatively into the plan of improving and promoting the social, economic, and physical welfare of the farmers of the county.

The Barren County Rural Planning Council has set up immediate and long-term goals to be reached in agriculture in the county, and these will

illustrate how the council works and how it has achieved such remarkable results. The goals are as follows:

a) Reduce the corn acreage from 55,000 to 40,000 acres
b) Reclaim 35,000 acres of wasteland
c) Reduce swine production to equal corn production
d) Increase dairy cattle, improve individual production
e) Increase beef-breeding herds
f) Increase breeding ewes from 12,000 to 20,000
g) Use 20,000 tons of ground lime annually
h) Ten per cent of crop land on each farm seeded for alfalfa
i) Seed a large part of Korean meadows and pastures to winter grain pasture
j) Twenty Four-H Clubs with 500 members; monthly meetings
k) Six Utopia Clubs with 180 members; monthly meetings
l) Twelve community-farm programs with officers and leaders
m) Leader-training schools and group discussion
n) Community shows and picnics
o) Community-center houses and entertainment
p) Livestock-disease and parasite-control program

We have devoted many numbers of the JOURNAL to community organization in the past, both in its theoretical and practical aspects. In Barren County, Kentucky, we have an example of community organization and planning at its best. It is no wonder that such notable progress has been made. It is noteworthy that twenty-five years ago none of these organizations even existed and there was no planning in the county. We are not too optimistic in predicting that within the immediate future these goals will be reached and new objectives will be set and achieved.

We note in this program of organization and planning, education at its best, since it is only in learning and practicing that changes in the community and individual behavior can be made and that is exactly the function of education. Education in the county, then, is not the result of the schools and the product of the school educators but of these organized agencies whose function is not primarily that of education.

E. GEORGE PAYNE